

EXHIBIT C

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45 Fed.Appx. 887
 45 Fed.Appx. 887
 (Cite as: 45 Fed.Appx. 887)

Page 1

H**Briefs and Other Related Documents**

This case was not selected for publication in the Federal Reporter.

NOTE: Pursuant to Fed.Cir.R. 47.6, this order is not citable as precedent. It is public record.

Please use FIND to look at the applicable circuit court rule before citing this opinion. Federal Circuit Rule 47.6. (FIND CTAF Rule 47.6.)

United States Court of Appeals,
 Federal Circuit.

OPTICAL DISC CORPORATION, Plaintiff-Appellant,

v.

DEL MAR AVIONICS and Bruce Del Mar, Defendants-Appellees,
 and

Toolex International N.V., Toolex USA, Inc., and Optical
 Disc Mastering
 Equipment, Inc., Defendants.
 No. 01-1606.

DECIDED: Aug. 1, 2002.

Patentee brought action for infringement of patent for apparatus for improving quality of compact optical discs (CD). The United States District Court for the Central District of California, Mariana R. Pfaelzer, J., granted summary judgment for alleged infringer. Patentee appealed. The Court of Appeals, Schall, Circuit Judge, affirmed in part, vacated in part, and remanded, 208 F.3d 1324. On remand, the district court granted summary judgment of non-infringement. Patentee appealed. The Court of Appeals, Schall, Circuit Judge, held that: (1) genuine issue of material fact existed as to whether inventors considered new waveshape, called CDRET, to be best mode of their invention as of filing date, precluding summary judgment, and (2) new waveshape was not disclosed in patent.

Reversed and remanded.

West Headnotes

[1] Patents ¶323.2(3)**291k323.2(3) Most Cited Cases**

Genuine issue of material fact existed as to whether inventors of patent for apparatus for improving quality of compact optical discs (CD) considered new waveshape, called CDRET, to be best mode of their invention as of filing date, precluding summary judgment. Fed.Rules Civ.Proc.Rule 56, 28 U.S.C.A.

[2] Patents ¶98**291k98 Most Cited Cases**

New waveshape, called CDRET, was not disclosed in patent for apparatus for improving quality of compact optical discs (CD), as required to satisfy best mode requirement, even though patentee asserted that one of ordinary skill in art would have easily appreciated that trapezoid waveshape depicted in patent could have been augmented with leading edge overshoot and exponential decay; patent explicitly disclosed single waveshape that comprised invention, the trapezoid waveshape, and it would not have been apparent to one of skill in the art to disregard waveshape explicitly disclosed in patent, and use different waveshape instead.

Patents ¶328(2)**291k328(2) Most Cited Cases**

5,297,129. Construed.

*887 Before MICHEL, SCHALL, and LINN, Circuit Judges.

DECISION

SCHALL, Circuit Judge.

Optical Disc Corporation ("ODC") appeals the final decision of the United States District Court for the Central District of California that granted summary judgment of invalidity of ODC's U.S. Patent No. 5,297,129 ("the '129 patent") in favor of the defendants (collectively, "Del Mar") for failure to disclose the best mode. *Optical Disc Corp. v. Del Mar Avionics*, No. CV 97-00650 MRP (C.D.Cal. July 25, 2001). Because we conclude that there is a genuine issue of material fact as to whether the inventors of the '129 patent *888 contemplated a best mode of their invention as of the filing date, we reverse and remand.

DISCUSSION

Westlaw.

45 Fed.Appx. 887

45 Fed.Appx. 887

(Cite as: 45 Fed.Appx. 887)

Page 2

I.

The '129 patent relates to optical recording. Optical recording refers to storing information in a medium that is sensitive to light, such as a compact disc ("CD"). The first step in the production of a CD is the creation of a master CD with data on it. Data is written onto the master CD, or recorded on it, by making physical alterations in the surface of a disc. These alterations are known as "surface effects." Normally, laser beams are used to write data onto the surface of a master CD. "Pits" are the most common form of surface alteration used to write information onto a disc.

After a master CD with data on it has been created, a metal layer typically is deposited on top of the disc in order to make an inverse image of it. The metallized inverse copy of the master CD, called a "stamper," then is separated from the master disc. The stamper is used to mold multiple replicas of the original master CD for distribution and sale.

In order to make an optical recording, a "laser write signal" controls the laser light so that it will make marks of the right shape on the recording medium. A prior art method of optical recording used simple rectangular waves as laser write signals. That is, the laser was turned on for a period of time in order to make a mark, and then turned off. An example of a rectangular laser write signal is shown in Line (A₁) in Fig. 3 of the '129 patent:

*889

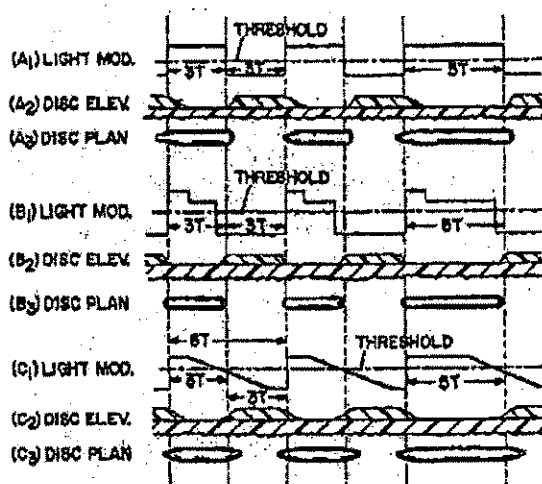


FIG. 3

FIG. 3

As explained in the '129 patent, the rectangular waveshape in Line (A₁) suffers from some disadvantages. When a laser beam hits the surface of the disc, it takes some time for the laser to heat up the disc. On the other hand, when the laser beam is turned off, the disc cools off almost immediately. This results in a pit in the disc with a shape that is not symmetrical. Specifically, a "pear-shaped" or "teardrop-shaped" surface effect will result at the leading edge of the pit, and a rounded or blunt edge will result at the trailing edge of the pit. This is illustrated in Line (A₃) in Fig. 3 of the '129 patent.

The lack of symmetry in the shape of the pit causes problems when reading the pits on the disc. If the front and back ends of the pit are non-symmetrical, it can be difficult for a CD player to determine exactly where the pit begins and ends. The '129 patent explains that one prior art attempt to improve the shape of the pit involved increasing the intensity of the laser beam at the beginning of the laser pulse. This produces symmetrical blunt ends on both ends of the pit. This is illustrated in Line (B₁) (laser pulse shape) and in Line (B₃) (resulting pit shape) in Fig. 3 of the '129 patent.

The '129 patent goes on to explain that "blunt ends on the pits make tracking difficult for some players." The invention

Westlaw.

45 Fed.Appx. 887

45 Fed.Appx. 887

(Cite as: 45 Fed.Appx. 887)

Page 3

of the '129 patent addresses this problem using a laser waveshape that produces tapered ends on both ends of the pit. The laser write signal that produces this effect uses what it called a "trapezoid" waveshape, *890 illustrated in Line (C₁) of Fig. 3 of the '129 patent. The trapezoid waveshape has a steep leading edge followed by a flat plateau portion followed by a ramped trailing edge. The '129 patent describes and claims the use of the trapezoid waveshape for optical recording.

After its development of the trapezoid waveshape, ODC continued to conduct research geared towards further improving its laser write signal. Sometime in 1992, named inventors Richard Wilkinson and Li Shigang came up with the idea for a new waveshape, which ultimately became known at ODC as the "CDRET" waveshape. [ENL] ODC documents show the CDRET waveshape as follows:

ENL "CDRET" stands for "CD Record Equalization Technology."



CDRET waveshape

from the above figure, the trailing edge has the same ramped shape as the trapezoid waveshape. The CDRET waveshape differs from the trapezoid waveshape in that the leading edge has an overshoot which then exponentially decays to a lower level of intensity, followed by a ramped trailing edge.

II.

The parties agree that the CDRET waveshape is the best mode of the claimed invention. The major issue in dispute is whether the inventors of the '129 patent considered the CDRET waveshape to be the best mode of their invention as of the date of filing of the '129 patent application, December 24, 1992 (the "filing date"). ODC's position is that the CDRET circuit was not completely tested by the filing date, and that therefore the ODC inventors were not sure as of

that date whether the CDRET waveshape was the best mode of the invention. Del Mar's position is that the CDRET waveshape had been fully tested as of the filing date, and that the testing showed such positive results that the ODC inventors knew by then that the CDRET waveshape was the best mode of the invention.

In the district court below, Del Mar moved for summary judgment of patent invalidity, arguing that the '129 patent was invalid by reason of the on-sale bar and for failure to meet the best mode requirement. The district court granted Del Mar's best mode motion, finding that the inventors considered CDRET to be the best mode of the invention before the filing date and that ODC did not adequately disclose this best mode in the patent. *Optical Disc*, slip op. at 4-5. The court rejected ODC's argument that the inventors did not know that CDRET was the best mode of the invention at filing because "beta" testing had not yet been performed. The court concluded that "[w]hether or not ODC had completed all of the beta testing required to perfect their commercial implementation of what later was called CDRET has no bearing on whether the inventors contemplated the new waveshape to be the *891 best mode of practicing the invention for which they filed an application." *Optical Disc*, slip op. at 7 n. 1 (emphasis in original). Having granted Del Mar's best mode motion, the district court denied the on-sale bar motion as moot.

III.

We independently review the district court's grant of summary judgment. *N. Telecom Ltd. v. Samsung Electronics Co. Ltd.*, 215 F.3d 1281, 1286 (Fed.Cir.2000). Summary judgment is appropriate only if there is no genuine issue of material fact and the moving party is entitled to judgment as a matter of law. See *Fed.R.Civ.P. 56(c)*. To this end, the court must draw all reasonable factual inferences in favor of the nonmovant. See *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986).

The best mode requirement appears in the patent statutes at 35 U.S.C. § 112, first paragraph: "The specification ... shall set forth the best mode contemplated by the inventor of carrying out his invention." The purpose of the best mode requirement is to restrain inventors from applying for patents while at the same time concealing from the public preferred

Westlaw.

45 Fed.Appx. 887

45 Fed.Appx. 887

(Cite as: 45 Fed.Appx. 887)

Page 4

embodiments of the inventions that they have in fact conceived. *Teleflex, Inc. v. Ficosa North America Corp.*, 299 F.3d 1313, 63 USPO2d 1374, 1384 (Fed.Cir.2002). A holding of invalidity for failure to disclose the best mode requires clear and convincing evidence that the inventor both knew of and concealed a better mode of carrying out the claimed invention than that set forth in the specification. *Id.*

Compliance with the best mode requirement is a question of fact, which involves a two-pronged inquiry. *Id.* The first prong is subjective, focusing on the inventor's state of mind at the time he filed the patent application, and asks whether the inventor considered a particular mode of practicing the invention to be superior to all other modes at the time of filing. *Id.* The second prong is objective and asks whether the inventor adequately disclosed the mode he considered to be superior. *Id.* at 1384-85; The second prong depends upon the scope of the claimed invention and the level of skill in the relevant art. *N. Telecom Ltd.*, 215 F.3d at 1286 (Fed.Cir.2001). With respect to both the first and second prongs, the best mode inquiry is directed to what the applicant regards as the invention, which in turn is measured by the claims. *Teleflex*, 63 USPO2d at 1385.

ODC argues that there is a genuine issue of material fact as to whether the inventors of the '129 patent knew that CDRET was the best mode of practicing the invention as of the filing date, because they were still evaluating and testing CDRET as of that date. Del Mar responds that the undisputed facts show that the inventors knew of the best way of practicing the claimed invention and that they failed to disclose it. Del Mar further contends that ODC's testing argument is without merit.

IV.

[1] We conclude that there is a genuine issue of material fact as to whether the inventors of the '129 patent considered the CDRET waveshape to be the best mode of their invention as of the filing date. In early December of 1992, ODC conducted testing at its own facility of CD masters manufactured using the CDRET waveshape, and it also tested replicas that were made from those CD masters. After it completed this in-house testing, ODC asserts that it proceeded to what it refers to as "beta" or "field" testing. Beta testing took place at a customer's facility beginning on December 17, 1992,

and involved *892 the following steps: (i) a breadboard CDRET prototype circuit was installed in a CD mastering machine at the customer's facility; (ii) CD masters were produced on the customer's CD mastering machine using the CDRET waveshape; (iii) CD replicas were then made from those CD masters; and (iv) the CD replicas were tested using various pieces of test equipment. Although ODC expected the beta testing to take only three days, it in fact continued for several weeks, due to problems with the customer's test equipment. After those problems were resolved, the customer made replicas from the CD masters on December 28-30, 1992. Shortly thereafter, those replicas were tested, showing good results.

ODC presented the testimony of two named inventors, an engineering manager, and an optical recording expert, all who testified that they could not be sure that CDRET would work for its intended purpose until it was subjected to beta testing. Specifically, named inventor Li Shigang testified as follows:

When my co-inventors and I filed the application for the '129 patent, we did not believe that the leading edge decay was the best mode of practicing our invention. In fact, until Beta testing occurred in 1993, we were not even sure if that modification would work in the real-world environment of a customer facility under actual production conditions. Until the circuit operated satisfactorily under those conditions, as established by actual Beta testing, *it would not have been shown to serve the purpose for which it was intended*, and could not possibly have been considered to be the best mode of practicing any invention at all.

Shigang Decl. at ¶ 9 (emphasis added). Co-inventor Richard Wilkinson testified that:

Based on my extensive experience in the highly technical area of optical data disc recording, ... Beta testing ... is commonly undertaken in the industry prior to offering a product or innovation for sale. Certainly, given the limitations of ... preliminary testing, including the difficulty and expense that would be entailed in creating a real world production environment at ODC, the limited access to samples and testing equipment (in the early 1990's, ODC did not have an automated analyzer), and the lack of stamper-production and replication facilities at ODC (which are expensive to acquire and operate), Beta testing

Westlaw.

45 Fed.Appx. 887

45 Fed.Appx. 887

(Cite as: 45 Fed.Appx. 887)

Page 5

is essential. Given the highly technical nature and sensitivity of laser optical recording, and the dynamics of and differences in production environments of ODC mastering equipment end-users, such as different levels of operator expertise, production requirements, and types of stamper-production and replication equipment, *no amount of preliminary, in-house testing can assure that a particular innovation will work suitably for its intended purpose in practice.* In addition, given the purpose of Beta testing, such testing almost never occurs with new customers who are just setting up their ODC mastering and production environments. Rather, Beta testing occurs in established production environments, where test results can be compared with earlier data.

Wilkinson Decl. at ¶ 31 (emphasis added). Mr. Wilkinson further testified:

I was not able to determine if CD RET worked in practice until after reviewing test replicas generated at [the customer] on December 30, 1992, at the earliest.

Wilkinson Decl. at ¶ 51. Marc Parveneh, an ODC engineering manager, testified that

*893 upon completion of preliminary testing of appropriate content and duration, the new design is Beta tested in an established customer facility (or often in several of them) to verify whether it will solve the problem for which it was designed, in a real-world environment, under actual production conditions. In Beta testing, the entire production process is conducted with that new component in place. *This is the only sure way to verify that the design will actually achieve the result for which it was designed.* Without such Beta testing, the design cannot be validated sufficiently to add it to the product line offered by ODC to customers on a non-experimental basis.

Naturally, this process can be terminated at any point, *if, for example, the design proves to be deficient* or if a better design is found or if ODC simply decides that the problem is no longer worth pursuing and wishes to apply its resources to other, more important, tasks.

Parveneh Decl. at ¶¶ 13-14 (emphasis added). Finally, ODC's expert, Dr. Howe, testified:

Due to certain non-linearities which may exist in the process of forming a metal stamper (from the master disc) and the subsequent molding of plastic replica discs (from the stamper), the requisite dimensions and morphology of

pits on the master discs will in general be different from the desired dimensions and morphology of the pits in the replica discs.

The modulation circuit and methodology that are the subject of the '129 patent provide important elements of a process that offers improved control of the pit-forming medium's exposure, which ultimately provides improved control of the dimensions and morphology of the recorded pits, not only in the master disc but more importantly in the replicated discs. Because the stamper generation and replication processes will introduce changes in the ultimate pit morphology that are impossible to predict with 100% accuracy, the effectiveness of a particular master disc exposure profile can only be determined by analyzing replicated discs. Therefore, in order to validate a mastering control mechanism and to qualify a product or subsystem implementing it, that product or subsystem would have to undergo preliminary testing to assess its likelihood of success, followed by beta testing under true production conditions. *Only upon beta testing in a production environment could the effectiveness of mastering control procedures be verified, by studying the effect of changes in the mastering parameters on the playback performance of the replicated discs.*

Howe Decl. at ¶¶ 5-6 (emphasis added).

Finally, ODC points to a service report dated December 18, 1992, which describes the installation of the CDRET broadband circuit at ODC's customer. The service report is labeled "Experiment" and describes the work done on that day as: "Installed experimental board."

The district court found that "[b]eta testing is simply the field testing a product undergoes after it has been decided that is a viable product—beta testing works out bugs, it is not a prerequisite to a determination that a product will work." *Optical Disc*, slip op. at 7 n. 2. We agree with the district court that there is evidence in the record that supports its conclusion. We hold, however, that the evidence to the contrary described above, when viewed in the light most favorable to ODC, presents a genuine issue of material fact as to whether the inventors considered completion of beta testing to be necessary to *894 determine whether the CDRET waveshape worked for its intended purpose. Furthermore,

Westlaw.

45 Fed.Appx. 887
 45 Fed.Appx. 887
 (Cite as: 45 Fed.Appx. 887)

Page 6

Del Mar has the burden of proof by clear and convincing evidence to demonstrate that the patent is invalid for failure to disclose the best mode. We think there is a genuine issue of material fact as to whether Del Mar has carried that burden.

Del Mar also argues that the invention claimed in the '129 patent is directed to optical recording generally, and not limited to the manufacture of CD replicas. [FN2] Del Mar therefore contends that the inventors knew that the CDRET waveshape was the best mode immediately after they successfully tested CD masters at ODC's facility in early December of 1992. We disagree.

FN2. Claim 1 is representative of the claims in suit: 1. A waveform shaping circuit for use in an optical recording apparatus which includes a writing light beam source and an optical modulator for modulating the intensity of the writing beam of light above and below a threshold level of a moving recording medium in response to a modulator drive signal for recording information on the medium, the light beam being capable of forming a track of surface effects in the moving recording medium when the writing beam is above the threshold and incapable of forming said track of surface effects in the moving recording medium when the writing beam is below the threshold, said waveform shaping circuit comprising:

delay means for receiving a substantially rectangular waveform having leading and trailing edges, provided as said modulator drive signal to modulate the writing beam, and for delaying said leading edges while passing said trailing edges undelayed; and

waveform shaping means coupled to said delay means for producing a shaped modulator drive signal having steep leading edges reaching a first level sufficient to cause said writing beam to have an intensity above the threshold of the moving medium, and having ramped trailing edges changing amplitude at a prescribed rate to reach a second level sufficient to cause said writing beam to have an intensity below the threshold of the moving medium

prior in time to the occurrence of the respective next leading edges of the received rectangular waveform.

The evidence of record indicates that there are a number of ways that the efficacy of the CDRET method of optical recording could be tested and verified. One way is to create masters and test those masters with an oscilloscope, a CD analyzer, a microscope, or a "Marantz" player. Another way is to create replicas from those masters and test those replicas. The declarations of the three ODC engineers, the declaration of Dr. Howe, and the service report labeled "Experiment," all support ODC's argument that the inventors of the '129 patent did not consider the CDRET method of optical recording to work for its intended purpose until beta testing was completed. Although Del Mar argues that "[t]he claims would cover other types of optical recording systems, including those that directly record discs that are not used for replication, such as the recordable CD drives found in many personal computer systems," we see no evidence in the record that such systems existed in December of 1992 or that the inventors of the '129 patent subjectively considered those systems to be an application of their invention.

Furthermore, the '129 patent specification lends support to ODC's argument that the inventors considered the manufacture of CD replicas to be the intended application of their invention. Specifically, the patent states that the invention provides flexibility in controlling waveshape parameters to "tak[e] into account the differences in chemicals, surface thicknesses on the disc, molding machines, and mastering machines." '129 patent: col. 6, ll. 45-54 (emphasis added). Thus, the patent contemplates *895 the use of molding machines to manufacture replicas.

"The best mode inquiry focuses on the inventor's state of mind as of the time he filed his application--a subjective, factual question." *Chemcast Corp. v. Arco Indus. Corp.*, 913 F.2d 923, 926, 16 USPQ2d 1033, 1035 (Fed.Cir.1990). In this case, summary judgment was inappropriate because there is evidence that casts doubt on whether the inventors subjectively considered CDRET to be the best mode of their invention as of the filing date.

V.

Westlaw

45 Fed.Appx. 887

45 Fed.Appx. 887

(Cite as: 45 Fed.Appx. 887)

Page 7

The district court decided to give no credence to Mr. Wilkinson's declaration testimony because it conflicted with his earlier deposition testimony. *Optical Disc*, slip op. at 8. In his May 21, 1998 deposition, Mr. Wilkinson testified as follows:

Q: So do you have any recollection of when it was you had the idea [for the CDRET waveshape?]

A: I would say that was *probably around mid '92* that we began work on [CDRET].

Q: Okay. Did you find that that--[CDRET] was effective in creating a better product?

A: Yes. It actually gave us still more means of adjusting and tailoring the shape of the pits than we had before.

Q: When did you decide, through experimentation, or testing, or whatever, that [the CDRET waveshape] would be a good thing to do for the product and create a better product?

A: That had to be in the *last half of 1992*.

Q: Does that mean that you were probably doing experiments regarding--with this sort of wave form *in the last half of 1992*?

A: Yes. All of these decisions are based on doing some work measuring the results and deciding, yes, that's better, or worse, or is it worth pursuing.

(emphasis added).

In his later declaration, dated January 18, 2001, Mr. Wilkinson stated that the inventors of the '192 patent were not sure that CDRET was the best mode of the invention until December 30, 1992, at the earliest, when ODC generated replicas for beta testing. In this declaration, he explained that, at the time he was deposed, he had not had the benefit of reviewing the relevant documents beforehand and that he was just offering his "best guess."

We agree with ODC that Mr. Wilkinson's declaration statements do not merit exclusion. First of all, his declaration comments are not really contradictory to his deposition statements, because December 30, 1992 is in the "last half of 1992." Furthermore, at several points during Mr. Wilkinson's 1998 deposition, he indicated that he was just giving ballpark estimates of the dates of events that had occurred six years earlier. For example, he stated:

Q: So your best estimate is that you began working on [CDRET], say, June of '92 to fall of '92, somewhere in that range?

A: Yeah. That's my best guess at the moment.

As the Ninth Circuit has noted, a witness may submit an affidavit that simply explains or clarifies the earlier deposition testimony when, as in this case, the witness appeared confused or simply lacked access to the information requested at the deposition. *See Kennedy v. Allied Mutual Ins. Co.*, 952 F.2d 262, 266 (9th Cir.1991). Moreover, even if we were to agree with Del Mar that Mr. Wilkinson's declaration "896 should be given no weight, other evidence, such as the declaration testimony of Mr. Shigang, is sufficient to create a genuine issue of material fact as to whether the inventors considered CDRET to be the best mode of the invention as of the filing date.

VI.

Prior to beta testing, ODC sent CD masters out to at least one customer to have replicas made. It then tested those replicas at its own facility. This testing was completed by December 17, 1992. ODC argues that the results from this in-house replica testing were "decidedly mixed." To support this argument, ODC points to Mr. Wilkinson's lab notebook, on a page dated December 16, 1992, where he wrote that the "eye pattern looks very bad on replicated discs cut at 1.2 M/sec."

Del Mar responds that we should not consider the lab notebook entry because ODC did not present this "mixed-results argument" to the district court below. In addition, Del Mar argues that we should allow it to rebut the lab notebook statement by supplementing the record with four additional pages from Mr. Wilkinson's deposition which were not part of the record below. In these four pages, Mr. Wilkinson testified as follows:

Q: Let's look at the first page [of the lab notebook]. It is dated 12-16-92. Does what is on this page have anything to do with the prototype CDRET board that was apparently being tested at that time period?

A: This page is a recap of observations made over the last few years just to document observations.

Q: So this doesn't directly relate to anything you did right around the date 12-16-92?

Westlaw.

45 Fed.Appx. 887

45 Fed.Appx. 887

(Cite as: 45 Fed.Appx. 887)

Page 8

A: No, it doesn't describe specifically anything done on that date.

Q: Were these three pages [of the lab notebook] that I referred to ... related in some way to the testing of the CDRET prototype board ...?

A: There's a little bit of data here that does come from the prototype CDRET board. However, this testing was not specifically to qualify the CDRET board itself. That had already been done. This was principally to investigate and be able to compare all the sources of jitter in the recording process.

Q: So was the qualifying of the CDRET board done before 12-18-92?

A: Yes.

Q: What do you mean by "qualify the CDRET board"?

A: That we had indeed made masters, made replicas, and confirmed that we could get excellent quality replicas using that board on our machine....

ODC seeks to exclude the four additional pages of Mr. Wilkinson's deposition testimony because they were not part of the record below. ODC notes that Del Mar first brought Mr. Wilkinson's lab notebook entries to the attention of the district court in its reply brief in connection with its motion for summary judgment on the best mode issue, and it points out that the district court cited one of the lab notebook pages in its decision. *See Optical Disc*, slip op. at 6.

We reject Del Mar's contention that we should not consider the lab notebook because ODC failed to raise the "mixed results" argument below. ODC argued below that the inventors did not consider CDRET to be the best mode of the invention at the date of filing because beta testing had not yet been completed at that *897 time. Mr. Wilkinson's lab notebook is simply further evidence that supports this argument. Furthermore, as ODC correctly points out, Del Mar itself brought the lab notebook pages at issue to the attention of the district court, and the district court cited those pages in its opinion.

The lab notebook statement further buttresses our conclusion that there is a genuine issue of material fact as to whether the inventors considered the CDRET waveshape to

be the best mode of the invention as of the filing date. We do not need to decide whether ODC should be allowed to introduce four additional pages of Mr. Wilkinson's deposition which were not part of the record below, because even considering those deposition pages, there is still a factual dispute concerning whether the eye pattern problem mentioned in the lab notebook had actually been resolved by December 16, 1992, the date of the lab notebook. Thus, Mr. Wilkinson's lab notebook further supports our conclusion that a remand on the best mode issue is required.

VII.

[2] Addressing the second prong of the best mode inquiry, ODC argues that although CDRET is not expressly disclosed in the '129 patent, it is implicitly disclosed. ODC relies on the declaration of its expert, Dr. Howe, who opined that one of ordinary skill in the art of master disc recording in the late 1980's and early 1990's, upon reading the technical description given in the '129 patent specification, would have "easily appreciated" that the trapezoid waveshape depicted in the patent "could be augmented" with a leading edge overshoot and an exponential decay. We are not persuaded by ODC's argument.

It is true that "[w]e have consistently recognized that whether a best mode disclosure is adequate, that is, whether the inventor concealed a better mode of practicing his invention than he disclosed, is a function of not only what the inventor knew but also how one skilled in the art would have understood his disclosure." *Chemcast*, 913 F.2d at 927, 16 USPQ2d at 1036 (Fed.Cir.1990). However, we have also warned that "[w]hile a disclosure necessary to meet a statutory requirement is to be understood from the standpoint of one skilled in the relevant art, a certain basic disclosure is needed of the best mode." *Robotic Vision Sys., Inc. v. View Eng'g, Inc.*, 112 F.3d 1163, 1165, 42 USPQ2d 1619, 1622 (Fed.Cir.1997). The '129 patent only discloses a single waveshape corresponding to the claimed invention: the trapezoid waveshape. There is no disclosure or suggestion to use a leading edge overshoot followed by an exponential decay and a ramped trailing edge. Although ODC argues that Line (B₁) in Fig. 3 of the '129 patent suggests the use of a leading edge overshoot, Line (B₁) merely depicts the prior art, not the claimed invention.

Westlaw.

45 Fed.Appx. 887

45 Fed.Appx. 887

(Cite as: 45 Fed.Appx. 887)

Page 9

The two cases relied on by ODC, *Robotic Vision Systems* and *In re Sherwood*, 613 F.2d 809, 204 USPO 537 (Fed.Cir.1980), are inapposite. In *Robotic Vision Systems*, the claimed invention related to a method of using a three-dimensional sensor to scan and inspect the leads of integrated circuit chips. 112 F.3d at 1164, 42 USPO2d at 1620. Although the specification disclosed motors for moving the sensor and encoders for indicating the position of the sensor, the specification did not disclose a mechanism for controlling the motors or for receiving positional information from the encoders. *Id.* We held that the patent was not invalid for failure to disclose that software was the best mode of the invention. We noted:

[T]he inventors in this case disclosed a device for carrying out their method, and it is plainly apparent that a computer, *898 operating under software control, is to be interfaced to the device for controlling the movement of the sensor. Something must be connected to the device for providing control signals to the motors and for receiving information from the linear encoders concerning a position of the sensor, and there is no dispute that that something is a computer.

Id. at 1166, 112 F.3d 1163, 42 USPO2d at 1622. The court further stated that "[f]rom the record before us, it is clear that a software program was involved in the carrying out of the invention and that no other mode existed." *Id.*

Essentially, the patent in *Robotic Vision Systems* contained a gap in the disclosure regarding how the motors were operated—a gap which one of skill in the art would clearly understand was filled by a computer software program. In contrast, the '129 patent has no gap. To the contrary, it explicitly discloses a single waveshape that comprises the invention, the trapezoid waveshape. It would not be apparent to one of skill in the art to disregard the waveshape explicitly disclosed in the patent, and use a different waveshape instead.

In re Sherwood is similarly inapposite. There, the specification disclosed the general mathematical equations comprising the invention and stated that the best mode for practicing the invention involved performing the processing steps on a digital computer. 613 F.2d at 817, 204 USPO at 544. We held that the disclosure of the mathematical algorithms was

sufficient to satisfy the best mode requirement because it would require only the application of routine skill to produce a workable computer program. *Id.* In this case, however, the '129 patent does not disclose the CDRET concept, nor does it disclose any guidelines that would enable one of skill in the art to produce the CDRET waveshape by application of routine skill.

To summarize, we hold that there is a genuine issue of material fact as to whether the inventors of the '129 patent considered CDRET to be the best mode of the invention as of the filing date, the first prong of the best mode inquiry. We agree with the district court, however, that there is not a genuine issue of material fact on the question of whether CDRET was disclosed in the '129 patent, the second prong of the best mode inquiry. CDRET was not disclosed in the patent, either implicitly or explicitly. The decision of the district court granting summary judgment of invalidity in favor of Del Mar is reversed. The case is remanded to the district court for further proceedings consistent with this opinion.

45 Fed.Appx. 887

Briefs and Other Related Documents (Back to top)

- [2002 WL 32616551](#) (Appellate Brief) Non-Confidential Brief of Defendants-Appellees Del Mar Avionics and Bruce Del Mar (Corrected) (Dec. 21, 2002)
- [2002 WL 32617027](#) (Appellate Brief) Corrected Non-Confidential Principal Brief of Plaintiff-Appellant, Optical Disc Corporation (Nov. 06, 2002)
- [2002 WL 32615351](#) (Appellate Brief) Corrected Non-Confidential Reply Brief of Plaintiff-Appellant, Optical Disc Corporation (Jan. 18, 2002)
- [01-1606](#) (Docket) (Sep. 04, 2001)

END OF DOCUMENT

EXHIBIT

D

REDACTED

EXHIBIT

E

REDACTED

EXHIBIT F

REDACTED

EXHIBIT G

REDACTED

EXHIBIT

H

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

SRI INTERNATIONAL, INC., a California)
Corporation,)

Plaintiff,)

v.)

INTERNET SECURITY SYSTEMS, INC.,)
a Delaware corporation, INTERNET)
SECURITY SYSTEMS, INC., a Georgia)
corporation, and SYMANTEC)
CORPORATION, a Delaware corporation,)

Defendants.)

Case No. 04-1199-SLR

**SUPPLEMENTAL RESPONSES AND OBJECTIONS OF
ISS-GA AND ISS-DE TO SRI'S INTERROGATORY NOS. 6 AND 11**

Pursuant to Federal Rules of Civil Procedure 26 and 33, Defendants Internet Security Systems, Inc. ("ISS-GA"), a Georgia corporation, and Internet Security Systems, Inc. ("ISS-DE"), a Delaware corporation, (collectively, "ISS") supplement their responses to Plaintiff SRI International, Inc.'s ("SRI's") Interrogatories Nos. 6 and 11.

GENERAL RESPONSES

1. ISS's responses are made to the best of ISS's present knowledge, information and belief. ISS's responses are subject to amendment and supplementation should future investigation indicate that amendment or supplementation is necessary. ISS undertakes no obligation, however, to supplement or amend these responses other than as required by the Federal Rules of Civil Procedure and the Local Rules for the United States District Court for the District of Delaware.

2. ISS's responses are made according to information currently in ISS's possession,

custody and control.

3. ISS reserves all objections or other questions as to the competency, relevance, materiality, privilege or admissibility of any information, document or thing produced in response to SRI's Interrogatories as evidence in any subsequent proceeding or trial in this or any other action for any purpose whatsoever.

4. ISS reserves the right to object on any ground at any time to additional interrogatories that SRI may propound involving or relating to the same subject matter as SRI's Interrogatories.

GENERAL OBJECTIONS

ISS incorporates their Objections contained in their Responses to SRI's First Set of Interrogatories. The applicable objections are incorporated into each of the responses that follow. The stating of a specific objection or response shall not be construed as a waiver of ISS's general objections.

SUPPLEMENTAL RESPONSES TO SRI INTERROGATORY NOS. 6 AND 11

INTERROGATORY NO. 6:

If you contend that any claim of any of the Patents-in-Suit is invalid, identify the specific statutory bases for the invalidity (e.g., 35 U.S.C. § 102(a)), the factual bases for that contention, any allegedly invalidating prior art or publications, where each element of the claim is found in the prior art or publications, and the three people most knowledgeable about the factual bases for your contention. Your response may take the form of a claim chart.

SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 6

ISS objects to Interrogatory No. 6 to the extent that it requests the "three people most knowledgeable about the factual bases for your contentions." This portion of the interrogatory

seeks a premature identification of expert witnesses upon which ISS intends to rely. ISS further objects that this Interrogatory is overbroad to the extent that it requests information regarding claims that SRI has not asserted against ISS in this litigation. SRI has accused ISS of infringing claims 1-6 and 12-17 of the '203 patent and claims 1-6 and 13-18 of the '615 patent.

Accordingly, ISS will address those claims. Because SRI has refused to designate asserted claims for the '212 and '338 patents, ISS will address all claims of those patents. ISS refers to these claims as the "claims at issue". ISS believes that any attempt by SRI to later try to assert additional claims against ISS would be highly prejudicial to ISS, and ISS reserves the right to supplement or modify these responses in such an event.

Moreover, despite repeated requests, SRI has not provided specific contentions regarding the conception date(s) for the alleged "inventions" claimed in the patents-in-suit in response to ISS's Interrogatory No. 7. SRI's response that the subject matter of the asserted patents was conceived "no later than" the filing date of the patent application from which those patents claim priority provides no information at all concerning conception. Similarly, SRI's attempt to rely on Rule 33(d) fails to provide alleged conception and reduction to practice dates because not only does SRI point to 38 ranges of documents, it fails to separately identify which documents it relies on for conception, which documents relate to diligence and which documents relate to a reduction to practice. To the extent that SRI has responded to Symantec's interrogatory, SRI has provided an approximately one year date range for conception of the '338, '203, and '615 patents, and an approximately two year date range for conception of the '212 patent. SRI has prejudiced ISS through its failure to provide the date(s) of conception and reduction-to-practice for each alleged "invention".

Consequently, the patentability of the claims-at-issue must be assessed in light of the state of the relevant art as of the filing date of the original application from which the patents issued. ISS intends to present evidence at trial that establishes and broadly illustrates the state of the art in intrusion detection and network monitoring as of November 9, 1998. ISS may rely upon publications, patents, percipient and expert testimony, and/or contemporaneous and predecessor products to reveal the state of such art at that time (or as of any earlier date if plaintiff offers legally adequate proof of an earlier date of invention).

The information provided in ISS's response is preliminary in nature and subject to modification and supplementation. ISS has only recently started to receive and review documents produced by SRI relating to the work that led to the patents-in-suit and certain prior art systems and references. Moreover, ISS continues to develop and refine its understanding of the state of the art as additional relevant information is acquired during the course of ongoing discovery. In addition, the complete scope of available prior art will not be known until the Court has construed the claims of the patents-in-suit. Ongoing discovery efforts may identify additional prior art references or embodiments that are relevant to the invalidity of the claims-in-suit. ISS will supplement this response in a timely manner upon receipt of sufficient information relating to such additional prior art references or embodiments.

The Court's Scheduling Order specifies that "on January 20, 2006, the parties shall exchange lists of those claim terms that they believe need construction and their proposed claim construction of those terms" and that the "parties shall agree upon and file the Joint Claim Construction Statement on February 17, 2006, with the claim chart separately docketed." Thus, ISS has not been provided with any understanding of SRI's proposed claim constructions, and therefore is unable to determine how SRI's proposed claim construction informs the anticipation

and obviousness contentions disclosed herein. Accordingly, ISS provides broad-based invalidity contentions that would include a claim scope SRI would have to assert in order to make an infringement argument against the accused ISS products. ISS reserves the right to supplement and modify its invalidity contentions under 35 U.S.C. §§ 102 and 103 subject to the claim constructions advanced by SRI. ISS further reserves the right to supplement and modify these contentions once the Court has construed the claims of the patents-in-suit.

The accompanying prior art claim charts, attached hereto as Exhibits 1-23, reflect ISS's current understanding of the primary prior art references and embodiments upon which it intends to rely to establish anticipation of the claims-in-suit under 35 U.S.C. § 102 or obviousness under 35 U.S.C. § 103. To the extent that a particular prior art reference or embodiment does not alone anticipate all the limitations of one of the claims-in-suit as ultimately construed by the court, ISS reserves the right to combine the references and/or embodiments disclosed herein with other references and/or embodiments that may complement any such reference or embodiment, to the extent that one skilled in the art at the relevant point in time would have had motivation to create such a combination.

Moreover, due to the magnitude of the prior art references that invalidate the claims at issue, as well as SRI's failure to provide conception and reduction-to-practice dates, ISS cannot possibly list every combination of art that renders those claims invalid under 35 U.S.C. § 103 and reserves the right to present different combinations of references and/or embodiments, to the extent that one skilled in the art at the relevant point in time would have had motivation to create such a combination.

Relevant Prior Art References Identified To Date

The knowledge of one skilled in the art as of Nov. 9, 1998 would have been informed by access to and appreciation of at least the following practices, publications, patents and publicly available technologies, products and systems. ISS intends to rely upon these and similar references to establish the state of the intrusion detection, network monitoring, and related arts on prior to November 9, 1998, and to establish that the claims-in-suit were anticipated under 35 U.S.C. § 102 or would have been obvious under 35 U.S.C. § 103 as of November 9, 1998:

- All prior art of record in the file history of the patents-in-suit; or identified in the specification of the patents-in-suit;
- All prior art references identified in Exhibits 1-23 attached hereto; and
- All prior art references produced to SRI.

Additional Technologies, Products and Systems

- Argus
- Arpwatch
- ASIM (Automated Security Incident Measurement)
- Berkeley Packet Filter
- Borderguard
- Bro
- Cabletron's Spectrum
- CIDF (Common Intrusion Detection Framework)
- Computer Associates Unicenter TNG
- CSM (Cooperating Security Managers)
- DIDS (Distributed Intrusion Detection System)

- EMERALD
- FireWall-1
- GrIDS (Graph based Intrusion Detection System)
- Harris Corporation Stake Out
- Haystack
- HP OpenView, Network Node Manager, and NetMetrix
- IDES
- Internet standards
- IP Filter
- ISM (Internetwork Security Manager)
- Ji-Nao
- Libcap
- MIDAS (Multics Intrusion Detection and Alerting System)
- NADIR (Network Anomaly Detection and Intrusion Reporter)
- NetRanger
- NFR (Network Flight Recorder)
- NIDES
- NIDX
- NSM (Network Security Monitor)
- Raxco AUDIT
- Stalker, NetStalker and WebStalker
- Sun Network Management System (Solstice Site Manager, Solstice Domain Manager, Solstice Enterprise Manager, and Sun Net Manager)

- Topdump
- TCP Wrapper
- TIS Firewall Toolkit
- Tivoli Enterprise Manager
- Wisdom & Sense

PRIOR ART REFERENCES THAT INVALIDATE THE CLAIMS-AT-ISSUE

The prior art invalidates the claims at issue under 35 U.S.C. §102 and/or 103, as set forth in detail in the representative charts attached as Exhibits 1-23 to this supplemental response. The cover page of each chart provides citations to referenced prior art, as well as citations to related prior art disclosures. These invalidity charts include:

- Exhibit 1: SRI's Emerald -- NISSC (October 9, 1997)
- Exhibit 2: SRI's Emerald -- CMAD Workshop, Monterey, 12-14 November 1996.
- Exhibit 3: SRI's Emerald -- Conceptual Overview
- Exhibit 4: SRI's Emerald -- Conceptual Design and Planning
- Exhibit 5: SRI's Emerald -- *Live Traffic Analysis of TCP/IP Gateways*
- Exhibit 6: SRI's Nides/Network Nides
- Exhibit 7: Ji-Nao
- Exhibit 8: NSM
- Exhibit 9: DIDS
- Exhibit 10: ISM
- Exhibit 11: GRIDS
- Exhibit 12: NetRanger
- Exhibit 13: RealSecure

- Exhibit 14: Network Flight Recorder
- Exhibit 15: NetStalker and HP OpenView
- Exhibit 16: HP OpenView and the internet standards
- Exhibit 17: Network Level Intrusion Detection
- Exhibit 18: U.S. Patent No. 5,825,750
- Exhibit 19: Fault Detection in an Ethernet Network via anomaly detectors
- Exhibit 20: Stake Out
- Exhibit 21: Emerald 1997, NSM and NIDES 1994
- Exhibit 22: AIS: Automated Information System
- Exhibit 23: Summary chart of other relevant art

THE CLAIMS-AT-ISSUE ARE INVALID PURSUANT TO 35 U.S.C. § 112

The claims-at-issue are also invalid under 35 U.S.C. § 112 for failure to satisfy the best mode requirement. SRI submitted source code in an Appendix to the patents-in-suit. A preliminary examination of that code indicates that it is not a complete program and could not compile and run. The Appendix appears to lack configuration files that would relate specifically to network traffic data or analysis. The code also does not have code for a resolver. On information and belief, ISS believes discovery will show that SRI had a more complete set of source code by the time it filed U.S. Patent Application No. 09/188,739 and withheld much of that code from the Patent Office. That withheld code reflected the inventor's best mode of practicing the claims at issue.

ISS's contentions regarding invalidity for failure to satisfy the enablement, written description and definiteness requirements of 35 U.S.C. § 112 are premature before claim construction. ISS reserves the right to supplement this response.

INTERROGATORY NO. 11:

State all facts supporting your contention that the Patents-in-Suit are unenforceable by reason of SRI's alleged inequitable conduct.

SUPPLEMENTAL RESPONSE TO INTERROGATORY NO. 11:

ISS objects to this interrogatory to the extent that it seeks to limit or narrow the bases supporting the claims asserted or relief sought by ISS in its answer and counterclaims in this action. ISS further objects to this request to the extent it seeks information that is subject to the attorney-client privilege, the work product doctrine, or other applicable privileges from disclosure. In addition, discovery has just begun in the case. Ongoing discovery efforts may identify additional facts showing the unenforceability of the patents-in-suit. ISS will supplement this response in a timely manner upon receipt of additional relevant information.

Subject to and without waiving its general and specific objections, ISS states that the patents-in-suit are unenforceable due to the intentional failure of the inventors, and/or their agents, to disclose to the PTO, during prosecution of the Patents-in-Suit, information material to the patentability of the Patents-in-Suit, in violation of Title 37, Code of Federal Regulations § 1.56. In a Combined Declaration and Power of Attorney filed with the PTO along with the patent applications that matured into the patents-in-suit, each of the inventors named on the patents-in-suit acknowledged his duty to disclose to the PTO all information that was material to the patentability of each patent application in accordance with 37 C.F.R. § 1.56. Both of the named inventors, Phillip Andrew Porras and Alfonso Valdes, failed to disclose material prior art

of which each was aware to the PTO. Despite being aware of this material prior art, the named inventors and/or others involved in the prosecution of the applications that matured into the patents-in-suit failed to disclose it to the PTO with, on information and belief, an intent to deceive the PTO. Such a failure to disclose material prior art during the prosecution of the applications that matured into the patents-in-suit constitutes inequitable conduct before the PTO, and renders the patents-in-suit unenforceable.

SRI's failure to disclose to the Patent Office its own invalidating 102(b) public disclosure of the technology of the patents-in-suit. On information and belief, at least as early as May 1995, Mr. Valdes co-authored an article entitled "Next-generation Intrusion Detection Expert System (NIDES) A Summary" (the "NIDES reference"). The NIDES reference was listed as available in hard copy by request on the SRI Computer Science Laboratory's publicly available website at least as early as July 5, 1997. The NIDES reference was material to the patentability of the alleged inventions claimed in the patents-in-suit because the NIDES reference discloses the use of NIDES technology to perform network monitoring and intrusion detection, referred to as "Network NIDES." In addition to the facts alleged in ISS's answers, the materiality of this reference is demonstrated by the chart attached as Exhibit 6 (SRI's Nides/Network Nides), which indicates that the reference anticipates most of the claims-at-issue. It is also demonstrated by SRI's submission of the NIDES reference to the PTO during the prosecution of pending patent applications, U.S. Patent Application Nos. 10/429,611 and 10/805,729, which are related to the patents-in-suit.

SRI also failed to disclose to the Examiner several additional prior art publications with disclosures similar to the disclosure of *Network NIDES*:

- T. Lunt, A. Tamaru, F. Gilham, R. Jagannathan, P.G. Neumann, and C. Jalali, "IDES: A Progress Report," in Proceedings of the 6th Annual Computer Security Applications Conference, 1990. (ISS 27834-27846). Relevant information from the publication includes, but is not limited to, the following:

"8.5 Monitoring Network Traffic

The theoretical basis for IDES can be extended so as to enable the development of an IDES that could monitor traffic in tactical communication networks to detect suspicious activity. The required extensions are twofold. ... Second, IDES's rule base has been designed for detecting suspicious *user* activity. To use IDES to monitor network traffic, where user data are not available, we must create a rule base with a set of rules specific to the domain of detecting suspicious network traffic patterns.

In addition to establishing the theoretical foundation for these two extensions to IDES, we would develop candidate architectures for incorporating one or more IDES into the network topology. So far IDES has assumed centralized control and is thus appropriate for systems with high channel capacity and low transfer delay. Tactical networks operating under stress are expected to have neither. Moreover, tactical networks can become partitioned, so that an IDES with centralized control would not have global knowledge. Thus, a distributed approach to detect anomalous behavior is more appropriate for tactical communications networks. We envision that IDES in this context would consist of a set of loosely coupled IDES machines." *Id.* at 283

- T.F. Lunt, A. Tamaru, F. Gilham, R. Jagannathan, C. Jalali, H.S. Javitz, A. Valdes, and P.G. Neumann, "A Real-Time Intrusion-Detection Expert System (IDES)," Interim Progress Report, Project 6784, SRI International, May 1990. (ISS 355143-355280). Relevant information from the publication includes, but is not limited to, the following:

9.2.4 Monitoring Network Traffic

The theoretical basis for IDES can be extended so as to enable the development of an IDES that could monitor traffic in tactical communication networks to detect suspicious activity. The required extensions are threefold.

1. IDES's statistical algorithms are based on the probabilities of occurrence of the events it observes. In a network, however, IDES would not be able to operate with global knowledge. Thus, IDES's algorithms

must be extended to give meaningful results when some information is missing and probabilities can only be estimated.

2. IDES's rule base has been designed for detecting suspicious *user* activity. To use IDES to monitor network traffic, where user data are not available, we must create a rule base with a set of rules specific to the domain of detecting suspicious network traffic patterns.

3. IDES's statistical and rule-based components can be enhanced using ideas from visual pattern recognition theory, machine learning, neural networks (considered below), and other artificial intelligence techniques. This will enhance IDES's ability to make inferences about the type and location of suspicious activity by observing traffic.

In addition to establishing the theoretical foundations for these three extensions to IDES, we would develop candidate architectures for incorporating one, or more, IDES into the network topology. So far IDES has assumed centralized control and is thus appropriate for systems with high channel capacity and low transfer delay. Tactical networks operating under stress are expected to have neither. Moreover, tactical networks can become partitioned, so that an IDES with centralized control would not have global knowledge. Thus, a distributed approach to detect anomalous behavior is more appropriate for tactical communications networks. We envision that IDES in this context would consist of a set of loosely coupled IDES machines. *Id.* at 82-83

- T. F. Lunt, A. Tamara, F. Gilham, R. Jagannathan, P. G. Neumann, H. S. Javitz, A. Valdes, and T. D. Garvey, "A Real-Time Intrusion Detection Expert System (IDES) – Final Technical Report," Tech. Rep., SRI Computer Science Laboratory, SRI International, Menlo Park, CA, Feb. 1992. (ISS 27669-27833). Relevant information from the publication includes, but is not limited to, the following:

Detecting Network Intrusions Current computing environments are, more and more, massively networked sets of workstations, servers, mainframes, supercomputers, and special-purpose machines and devices. Focusing on the vulnerabilities of any single host or even any single homogenous local network of machines may prove inadequate in such a distributed environment. Detecting intruders will require a comprehensive view of a network, possibly extending to other networks connected to the local network. Applying IDES technology to this (possibly heterogeneous) computing environment will require expanding the scope of IDES to include the ability to detect network intrusions as well as intrusions into

the individual host machines. To achieve this, the following steps are necessary:

- Build a rule base into IDES that contains specialized knowledge about network vulnerabilities and intrusion scenarios.
- Enable IDES to work with partial information, since in a very large network it is unlikely that IDES will possess complete information about the whole network at all times. This capability will make IDES especially attractive for use in tactical communication networks, which must operate in hostile environments.
- Develop an overall architecture for inserting IDES or a distributed set of component IDES machines into a large, complex network....
- Network Intrusion Detection – We plan to develop and implement a capability for detecting network intrusions by combining a specialized rule base on network vulnerabilities with intrusion scenarios, develop a capability for the detection of intrusions with partial information, and develop architecture for the integration of IDES into a large, complex network.
- Large Network Architecture – We plan to develop architecture for inserting IDES into a large network, and will we [sic] work with a U.S. Government installation (e.g., NOSC) to install IDES in such an environment. *Id.* at 95-97

We also plan to extend the theoretical basis for IDES to enable the development of an IDES that could monitor traffic in tactical communication networks to detect suspicious activity. The required extensions are twofold: ...

- IDES's rule base has been designed for detecting suspicious *user* activity. To use IDES to monitor network traffic, where user data are not available, we must create a rule base with a set of rules specific to the domain of detecting suspicious network traffic patterns.

In addition to establishing the theoretical foundation for these extensions to IDES, we plan to develop candidate architectures for incorporating one or more IDES into the network topology. So far IDES has assumed centralized control and is thus appropriate for systems with high channel capacity and low transfer delay. Tactical networks operating under stress are expected to have neither. Moreover, tactical networks can become partitioned, so that an IDES with centralized control would not have global knowledge. Thus, a distributed approach to detect anomalous behavior is more appropriate for tactical communications networks. We envision that IDES in this context would consist of a set of loosely coupled IDES machines. *Id.* at 103-03

In addition to failing to submit these references, SRI also failed to disclose to the Patent Office several 102(b) references concerning the EMERALD project, the very project under which SRI performed the work that led to the filing of the patents-in-suit, as indicated by referenced DARPA contract number in the specification of the patents-in-suit. These references include a paper for and presentation at the November 1996 CMAD Workshop, a Conceptual Overview paper, which was posted on SRI's website a year before the priority date of the patents-in-suit, and the Emerald Conceptual Design and Planning Document, which also was posted on SRI's website a year before the priority date of the patents-in-suit. The citations to these documents are found in the cover pages to Exhibits 2-4. The materiality of these references is demonstrated by invalidity charts attached as Exhibits 2-4. Moreover, much of the specification of the patents-in-suit can be traced to the disclosures in these references. All of these references were co-authored by one or more of the named inventors. Yet, none of them were cited to the Examiner.

Despite these 102(b) disclosure of the EMERALD project, SRI disclosed only one 102(b) EMERALD paper from the 20th NISSC and that paper was cited in the middle of a long list of other references, many of which are dated after the priority date. That NISSC paper does not include detail found in other references cited above.

SRI's 102(b) references that disclose the subject matter of the patents-in-suit and were co-authored by the named inventors are highly material to the patentability of the claims-at-issue. On information and belief, the failure to cite those references was made with intent to deceive the U.S. Patent Office. Had the inventors and/or their agents made accurate representations to the U.S. Patent Office concerning their own 102(b) disclosures, the patents-in-suit would not have issued. Thus, those patents are unenforceable due to inequitable conduct.

SRI's failure to disclose material relating to NSM during the prosecution of the '338 patent. In addition, intentional and material false statements or omissions were made by the inventors and/or their agents by the failure of the applicants to disclose to the Examiner during prosecution of the '338 patent any publications regarding the Network Security Monitor ("NSM") including: L.T. Heberlein, G.V. Diaz, K. N. Levitt, B. Mukherjee, J. Wood, D. Wolber., "A Network Security Monitor," *Proc. 1990 Symposium on Research in Security and Privacy*, pp. 296-304; May 1990 (ISS 4149-4157) or any of the additional references listed on the cover page of Exhibit 8. The materiality of this reference is demonstrated by the "NSM" invalidity chart attached as Exhibit 8, which indicates that the reference anticipates most of the claims-at-issue for the '338 patent.

The named inventors were aware of the existence of the NSM system at least as early as May 1997. Phillip Porras was the co-author on a publication discussing NSM dated May 16, 1997, *see* SRI 12308-12404 at 12390.¹ In addition, P. Porras and P. Neumann, *EMERALD: Event Monitoring Enabling Responses to Anomalous Live Disturbances*, 20th NISSC October 9, 1997 (ISS 2892-2904) states that "the Network Security Monitor [7] seeks to analyze packet data rather than conventional audit trails..." *Id.* at 364

The omitted May 1990 NSM reference, as well as the related references listed on page one of Exhibit 8, would have been considered by a reasonable examiner to be material to a determination of allowability of the '338 patent claims, and on information and belief, said omissions were made with intent to deceive the U.S. Patent Office. Had the named inventors

¹ SRI has marked this document as "CONFIDENTIAL" - Subject to Protective Order." However, the document itself indicates that it was publicly posted on the Internet at <http://www.esl.sri.com/intrusion.html>. Symantec believes this document has been improperly designated as Confidential. However, in an abundance of caution, Symantec has marked as Confidential Exhibit A-4, which provides the anticipatory disclosures of this document.

and/or their agents made accurate representations to the U.S. Patent Office, the '338 patent would not have issued. Thus, the '338 patent is unenforceable for inequitable conduct.

SRI's failure to disclose material relating to JINAO during the prosecution of the patents-in-suit. Intentional and material false statements or omissions were made by the named inventors and/or their agents by the failure of the applicants to disclose to the Examiner during prosecution of the patents-in-suit any publications regarding the Ji-Nao system, including:

- Y. Frank Jou et al., *Architecture Design of a Scalable Intrusion Detection System for the Emerging Network*, Technical Report CDRL A005, DARPA Order No. E296, Dept. of Computer Science North Carolina State University, April 1997. (ISS 27334-27374)
- Y. Frank Jou and S. Felix Wu, *Scalable Intrusion Detection for the Emerging Network Infrastructure*, IDS Program Review, SRI, July 1997. (ISS 27377-27406)

These references, as well as the related references listed on page 1 of Exhibit 7, would have been considered by a reasonable examiner to be material to a determination of allowability of the claims of the patents-in-suit. The materiality of these references is demonstrated by the "Ji-Nao" and "Ji-Nao slides" charts attached as Exhibit 7, which demonstrates that both references anticipate the claims-at-issue of the patents-in-suit. The Ji-Nao system actually used the NIDES algorithms from SRI to perform statistical analysis: "the NIDES project at SRI is most extensive in its scope and development. It also has the most complete documentations available to the general public. With the understanding of statistical analysis's general applicability, we will adapt NIDES's statistical algorithm in our approach as a starting point and modify it as necessary." See Y. Frank Jou et al., *Architecture Design of a Scalable Intrusion Detection System for the Emerging Network*, Technical Report CDRL A005, DARPA Order No. E296, Dept. of Computer Science North Carolina State University, April 1997 at p. 18.

The inventors were aware of the existence of the Ji-Nao system at least as early as November 1996. On information and belief, at the CMAD IV Computer Misuse and Anomaly Detection Conference in Monterey, California, on November 12-14, 1996, the named inventors of the patents-in-suit presented the subject matter of the patents-in-suit during the same session as a presentation on the Ji-Nao system. During that session, Y. Frank Jou of MCNC presented "Scalable Intrusion Detection for the Emerging Network Infrastructure." See ISS 354559-354606. "Scalable Intrusion Detection for the Emerging Network Infrastructure" was the title of certain anticipatory references describing the Ji-Nao system, see Exhibit 7.

***REFERENCES OF QUOTED MATERIAL ON THIS PAGE HAVE BEEN MARKED
"CONFIDENTIAL - SUBJECT TO PROTECTIVE ORDER" BY SRI***

Moreover, on information and belief, the named inventors were collaborating with Mr. Jou and his team. Mr. Porras prepared a December 16, 1996 quarterly report to Rome Laboratory, the governmental agency that was responsible for monitoring SRI's work under the DARPA contract for the EMERALD project (SRI 11739-43). Mr. Porras reported that "Valdes met with Frank Jou from MCNC to discuss the use of the EMERALD statistical component for profiling the behavior of ATM switches and routers in a mixed ATM-TCP/IP environment. Jou's work is being conducted under another DARPA 96-03 contract." (SRI 11742).³ On information and belief, that is the DARPA contract under which the referenced Ji-Nao work was being performed.

In addition, Mr. Porras indicated in the May 20, 1997 EMERALD -- Conceptual Design and Planning paper (SRI 12308-12404) that the Ji-Nao team at MCNC "will employ our statistical profiler engine in its investigation of SNMP-based anomaly detection." (SRI 012400.)²

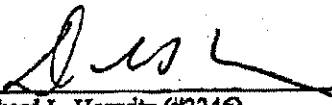
***³ REFERENCES OF QUOTED MATERIAL HAVE BEEN MARKED
"CONFIDENTIAL - SUBJECT TO PROTECTIVE ORDER" BY SRI***

Similarly, on information and belief, Mr. Porras and Mr. Jou were both present at an Intrusion Detection PI meeting in Savannah, Georgia on February 25-27, 1997. (ISS 27539-27543). On information and belief, Mr. Porras was present at the session where Mr. Jou provided a project update for "Scalable Intrusion Detection for the Emerging Network Infrastructure," again the same title as the invalidating references describing the Ji-Nao system attached as Exhibit 7.

Had the named inventors and/or their agents made accurate representations to the U.S. Patent Office concerning Ji-Nao and disclosures relating to the Ji-Nao project, the patents-in-suit would not have issued. On information and belief, the omissions of the referenced Ji-Nao material were made with an intent to deceive. Thus, those patents are unenforceable due to inequitable conduct.

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